

**Amendments To Claims**

The following will replace all prior versions and listings of claims in the application:

1. (Previously presented) An isolated polynucleotide comprising a nucleotide sequence selected from the group consisting of:
  - (a) a first nucleotide sequence which is a polymorphic variant of a reference sequence for the  $\beta_2$ -Adrenergic receptor ( $\beta_2$ AR) gene, wherein the polymorphic variant is a  $\beta_2$ AR isogene that encodes a  $\beta_2$ AR polypeptide capable of being activated by a  $\beta$ -agonist, wherein the first nucleotide sequence is selected from the group consisting of SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:23, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27, and SEQ ID NO:28; and
  - (b) a second nucleotide sequence which is complementary to the first nucleotide sequence.
2. (Canceled)
3. (Original) The isolated polynucleotide of claim 1 which is a DNA molecule and comprises both the first and second nucleotide sequences and further comprises expression regulatory elements operably linked to the first nucleotide sequence.
4. (Original) A recombinant organism transformed or transfected with the isolated polynucleotide of claim 3.
5. (Original) The recombinant organism of claim 4 which is a genetically-modified animal.
6. (Canceled)
7. (Previously presented) A composition comprising at least one genotyping oligonucleotide for detecting a polymorphism in the  $\beta_2$ -adrenergic receptor ( $\beta_2$ AR) gene at a polymorphic site selected from the group consisting of PS2 and PS5, wherein the oligonucleotide is at least 15 nucleotides long.

8. (Previously presented) The composition of claim 7, wherein the genotyping oligonucleotide is an allele-specific oligonucleotide that specifically hybridizes to an allele of the  $\beta_2$ AR gene at a region containing the polymorphic site, wherein the oligonucleotide comprises a nucleotide sequence selected from the group consisting of SEQ ID NOS:3-6.

9-28. (Canceled)

29. (Currently amended) A genome anthology for the  $\beta_2$ Adrenergic Receptor gene ( $\beta_2$ [.]AR) gene which comprises a set of  $\beta_2$ [.]AR isogenes ~~defined by haplotypes 1-12 shown in Table 5, wherein the set is each member of the group of  $\beta_2$ AR isogenes set forth in claim 1, and~~ wherein each of the  $\beta_2$ AR isogenes encodes a  $\beta_2$ [.]AR polypeptide capable of being activated by a  $\beta$ -agonist.

30. (Previously presented) The isolated polynucleotide of claim 3, wherein the DNA molecule is an expression vector.

31. (Previously presented) A recombinant cell comprising the expression vector of claim 30.

32. (Previously presented) The composition of claim 7, wherein the genotyping oligonucleotide is selected from the group consisting of an allele-specific oligonucleotide primer and a primer extension oligonucleotide, wherein the allele-specific oligonucleotide primer is selected from the group consisting of SEQ ID NOS:7-14 and the primer extension oligonucleotide is selected from the group consisting of SEQ ID NOS:15-18.

33. (Previously presented) The genome anthology of claim 29, wherein each isogene in the set is stored in a separate container.